

REMARKS

Claims 5 and 9 currently stand rejected under 35 U.S.C. § 112, second paragraph. Claims 1-2 and 4-9 stand rejected under 35 U.S.C. § 103. The Examiner has objected to the specification and the drawings. By this Amendment, claims 1-2, 4-5 and 9 are amended and claims 3 and 10-16 are cancelled. Accordingly, claims 1-2 and 4-9 are all the claims pending in this application.

ERROR IN OFFICE ACTION

In paragraph 5 on page 6 of the current Office Action, claim 11 is erroneously rejected under 35 U.S.C. § 102(b). In a telephone call to Examiner Graham, Applicant's representative confirmed that this is intended to be a rejection of claim 13.

OBJECTION TO THE DRAWINGS

The Examiner has objected to the drawings for supposedly failing to include reference characters mentioned in the specification, specifically, P1, P2, D1, D2, D3 and D4. Applicant submits that one of ordinary skill in the art would appreciate that the reference numerals without subscripts (P1, P2, D1, D2, D3, D4) contained in the specification correspond to the reference numerals shown in FIG. 2 with subscripts (P₁, P₂, D₁, D₂, D₃, D₄). Nevertheless, Applicant has amended FIG. 2 to include reference numerals without subscripts.

OBJECTIONS TO THE SPECIFICATION

The Examiner has objected to the specification for allegedly containing a number of minor informalities. Applicant has amended the specification as shown above. Applicant submits that these Amendments overcome the Examiner's objections.

With respect to the Examiner's assertion that the solution of equations (4) and (6-8) fail to result in equation 9, Applicant submits that this objection is overcome in view of the above amendments.

AMENDMENTS TO THE CLAIMS

Claims 1-2, 4-5 and 9 are amended as shown above.

35 U.S.C. § 112 REJECTIONS

The Examiner has rejected claims 5 and 9 under 35 U.S.C. § 112, second paragraph as being indefinite. Applicant submits that above claim amendments overcome these rejections.

35 U.S.C. § 103(a) REJECTIONS

A. d'Arc in view of Cherry

Claims 1, 2 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,271,063 to d'Alayer de Costemore d'Arc ("d'Arc") in view U.S. Patent No. 3,702,901 to Cherry ("Cherry"). Claim 1 has been amended to include, *inter alia*, the limitations of dependent claim 3. Accordingly, Applicant submits that this rejection is overcome with respect to each claim at least because of the Examiner's acknowledgement that the combination of d'Arc and Cherry fail to teach or suggest "that attenuations when acoustic waves from the front speaker and rear speaker are propagated to the prescribed locations are previously recorded" (Office Action at page 15) as recited in claim 1.

B. d'Arc in view of Cherry in further view of Craven

Claims 4-5 and 7-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over d'Arc in view of Cherry and further in view of U.S. Patent No. 5,511,129 to Craven *et al.* (Craven). For at least the following reasons, Applicant respectfully traverses this rejection.

Applicant has amended claim 1 to include the limitations of now cancelled claim 3.

Claim 1 recites a volume controller having a “fade volume computing unit for computing an amplifying factor k1 of an input signal for providing an increased volume at the rear or front speaker by the volume at a prescribed position within the vehicle which is equal to a decreased volume at the front or rear speaker when an input signal is attenuated by an attenuating factor K1...” The volume controller of claim 1 also includes “a control unit for multiplying the signal supplied to the rear or front speaker by the amplifying factor k1 when the input signal supplied to the front or rear speaker is attenuated by the attenuating factor K1...”

In the Office Action, the Examiner acknowledges that d'Arc fails to disclose “that the amplifying factor k1 for providing an increased volume at the rear or front speaker is equal to a decreased volume at the front or rear speaker when an input signal is attenuated by an attenuating factor K1, so that when a balancing point is moved from a prescribed position, a total volume within the vehicle is unchanged” and “that the control unit multiplies that signal supplied to the rear or front speaker by the amplifying factor k1.” To overcome this deficiency, the Examiner relies on Cherry. However, Applicant submits that Cherry fails to cure the admitted deficiencies of d'Arc.

Cherry relates to a control circuit to control audio signals in a four speaker system so that balancing of sound from the four speakers can be done such that the total volume output from the four speakers remains the same. *See* Abstract. To accomplish this, Cherry utilizes the circuit shown in Fig. 3. This circuit functions to divide a DC voltage between two pairs of transistors such that the voltage delivered to each pair can vary, but the total voltage delivered to both pairs remains constant. Fig. 3; col. 4, line 39 to col. 5, line 4. Cherry does not teach calculation of attenuation and/or amplification factors to control the voltage delivered to the voltage pairs, i.e., no such factors are used to control the volume output from the speakers. Thus, Applicant submits that Cherry fails to cure the deficiencies of d'Arc. Craven also fails to cure this deficiency in d'Arc.

While Applicant appreciates the Examiner's comments on page 11 of the present Office Action, Applicant, for the above reasons, disagrees with the Examiner's assertion. While the circuit shown in FIG. 3 may control total volume output it, it fails to disclose achieving this objective with the structure recited in claim 1.

Accordingly, Applicant submits that each pending claim is patentable over the cited references for at least this reason.

Furthermore, the Examiner acknowledges that the combination of d'Arc and Cherry fails to teach or suggest "that attenuations when acoustic waves from the front speaker and rear speaker are propagated to the prescribed locations are previously recorded." Office Action at page 15. To overcome this deficiency, the Examiner relies on Cherry. With respect to Cherry, the Examiner asserts that "[t]he implementation of the determined amplitude corrections [in

Cherry] read ‘on the basis of attenuations, the increased and decreased volumes at the front or rear speaker are computed’.” Applicant respectfully disagrees.

In Craven, the disclosed amplitude corrections are for compensating a waveform of sound partially absorbed, delayed or echoed at respective wavelengths so as to flatten the amplitude response (see, e.g., Summary of the Invention at column 3), and not for compensating a volume (sound level) attenuated at a specific position. Thus, Applicant submits that the Craven reference fails to cure the admitted deficiency of the teachings of d’Arc and Cherry.

Accordingly, Applicant submits that each pending claim is patentable over the cited references for at least this additional reason.

CONCLUSION

In view of the foregoing remarks, the application is believed to be in form for immediate allowance with claims 1-2 and 4-9, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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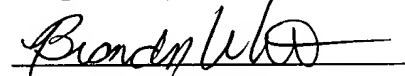
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CUSTOMER NUMBER

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Respectfully submitted,



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AMENDMENTS TO THE DRAWINGS

FIG. 2 has been amended as shown in the attached replacement sheet.

Attachment: Replacement Sheet (FIGS. 2-3)